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AUTOMATIC ELECTRIC POWER CONTROL CIRCUIT AND RADIO COMMUNICATIONS EQUIPMENT

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Abstract

PURPOSE:To reduce in an adjacent channel by reducing a distortion generated due to the decrease of a power supply voltage supplied to a power amplifier as much as possible.

CONSTITUTION:A communication is operated between a radio communications system through a radio channel with a base station, and a signal level inputted to a power amplifier 14 is variable-controlled by a variable attenuator 13, so that a transmitted output level can be maintained at the prescribed level. Then, the power supply voltage supplied from a power source circuit 2 to the power amplifier 14 is detected, and when the detected power supply voltage is lower than a prescribed level Vref 2, the variable attenuator 13 is controlled so that the transmitted output level can be decreased.

(Citation 3)

U.M. Application Publication No. 7-46033 - Oct. 18, 1995

Utility Model Application No. 2-1188 - Jan. 12, 1990

Utility Model Application Disclosure No. 3-94035 - Sep. 25, 1991

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Title of the Innovation: Power source controller for a vehicle-mounted acoustic apparatus.

Detailed Description of the Innovation:

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Referring to Fig. 1 and Fig. 2, the reference numeral 1 designates a power source controller, the reference symbol 1a designates a comparator, symbol 1b designates a reference voltage circuit, numeral 2 designates a cassette deck being an acoustic source, symbol 2a designates a microcomputer, numeral 7 designates a power source controller formed as a unit, symbol 7a designates a timer, symbol 7b designates an AND circuit, numeral 8 designates a sensitivity changeover switch, and symbols R_1 to R_3 designate resistors.

The circuit arrangement of the power source controller 1 is constituted in such a manner that, when an ACC (accessory) key 6 of the vehicle is turned on, a voltage is applied to the resistor R1 side of the series-connected resistors R_1 and R_2

for detection of the power source voltage, and the junction between the resistors R_1 and R_2 is connected to the plus (+) input terminal of the comparator 1a.

Further, the ACC voltage is applied to the reference voltage circuit 1b, so that a reference voltage b is produced.

Further, the output from the comparator 1a is connected to the input port of the microcomputer 2a that controls the various operations of the cassette deck 2 on which this power source controller 1 is mounted.

The two output ports of the microcomputer 2a are respectively connected to the bases of transistors Q_1 and Q_2 that turn on or off a control signal.

When, to the power source controller 1 that is connected and arranged as mentioned above and mounted in the cassette deck 2, the ACC key 6 is turned on, the ACC voltage is divided by the resistors R_1 and R_2, whereby a voltage a is applied to the plus (+) input terminal of the comparator 1a.

Further, the ACC voltage is also fed to the reference voltage circuit 1b, whereby a reference voltage b is applied to the minus (-) input terminal of the comparator 1a.

As for the operation of the comparator 1a, if the divided voltage a produced by the resistors R_1 and R_2 is higher in level than the reference voltage b, then said comparator 1a outputs an "H" level to the output terminal thereof, but, when the

divided voltage a falls below the reference voltage b, then said comparator 1a outputs an "L" level.

The microcomputer 2a thus receives as its input the output level of the comparator 1a; and, in case said output level is an "L" level, that is, in case the level of the divided voltage a of the ACC voltage falls below the level of the reference voltage b, said microcomputer 2a begins to count the time lapsing from the instant when said divided voltage (a) level falls, and, when a predetermined length of time lapses, said microcomputer 2a makes the level of a portion - for example, the level at a point C - of the control signal outputted from the output ports of the microcomputer 2a higher in level than the "L" level, whereby the transistor Q_1 is brought into cut-off state.

When the transistor Q_1 is thus cut off, the ACC voltage ceases to be sent to the front power amplifier 4, so that the power feed control transistor Q3 in the front power amplifier 4 is also cut off, and thus, the power supply to the circuit of the front power amplifier 4 is cut off.

Accordingly, the current flowing out from the battery 3 is reduced by an amount corresponding to the amount consumed by the power amplifier 4, and thus, the battery voltage rises, but, if, depending on the condition of the battery 3, the battery voltage further continues to fall, then the level at an output

port d of the microcomputer 2a is made higher in level than the "L" level to cut off the transistor Q_2.

By the cut-off of the transistor Q_2, the power feed control transistor Q4 of the rear power amplifier 5 is cut off this time as in the above-mentioned case, whereby the power supply to the circuit of the rear power amplifier 5 is cut off .....